CITY COUNCIL

AGENDA REQUEST

AGENDA OF:	**11-16-10**	**AGENDA REQUEST NO:**	**III-G**
INITIATED BY:	**KEISHA E. SEALS** **ENGINEERING IIII**	**RESPONSIBLE DEPARTMENT:**	**ENGINEERING**
PRESENTED BY:	**KEISHA E. SEALS** **ENGINEER III**	**DEPARTMENT HEAD:**	**CHRIS STEUBING, P.E., CFM** **CITY ENGINEER** CLS
	HOWARD CHRISTIAN **ASSISTANT UTILITIES DIRECTOR**	**ADDITIONAL DEPARTMENT. HEAD (S):**	**SUELLEN STAGGS, DIRECTOR OF UTILITIES** SMS
SUBJECT / PROCEEDING:	**NORTH WASTEWATER TREATMENT PLANT IMPROVEMENTS – WW1001** **AUTHORIZE ENGINEERING CONTRACT FOR FINAL DESIGN**		
EXHIBITS:	**SITE PLAN** **ENGINEERING SERVICES CONTRACT WITH ALAN PLUMMER ASSOCIATES, INC.**		

CLEARANCES		**APPROVAL**	
LEGAL:	**JOE MORRIS, CITY ATTORNEY** JCD for JDM	**EXECUTIVE DIRECTOR:**	**N/A**
PURCHASING:	**TODD REED** **PURCHASING MANAGER**	**ASST. CITY MANAGER:**	**KAREN DALY** kd
BUDGET:	**JENNIFER BROWN** **BUDGET & RESEARCH DIRECTOR**	**CITY MANAGER:**	**ALLEN BOGARD** Allen Bogard

BUDGET

EXPENDITURE REQUIRED: $	**126,000**
CURRENT BUDGET: $	**961,000 WW1001**
ADDITIONAL FUNDING: $	**N/A**

RECOMMENDED ACTION

Authorize the execution of an engineering services contract with Alan Plummer Associates, Inc. for preparation of a Final Design of the North Wastewater Treatment Plant Improvements (CIP WW1001) in an amount not to exceed $126,000.

EXECUTIVE SUMMARY

In July 2010, the City contracted with Alan Plummer Associates, Inc. (APAI) to prepare a facility plan to investigate the proposed improvement items, evaluate suitable alternatives, develop budget costs, establish relative benefits and recommend appropriate resolutions. The project items that were investigated included, but were not limited to: Chemical Feed, Non-potable Water System, Abandon Wells, Chlorine Contact Catch Basin, Site Road Improvements, Refurbish Control Building Exterior and other items. The study determined several improvements that would provide more public health and safety, regulatory compliance and plant efficiency at the North Wastewater Treatment Plant (NWWTP). The majority of the cost is for the new chemical building which was recommended due to several bulk storage leaks and spills in the past. The recommended improvements were as follows:

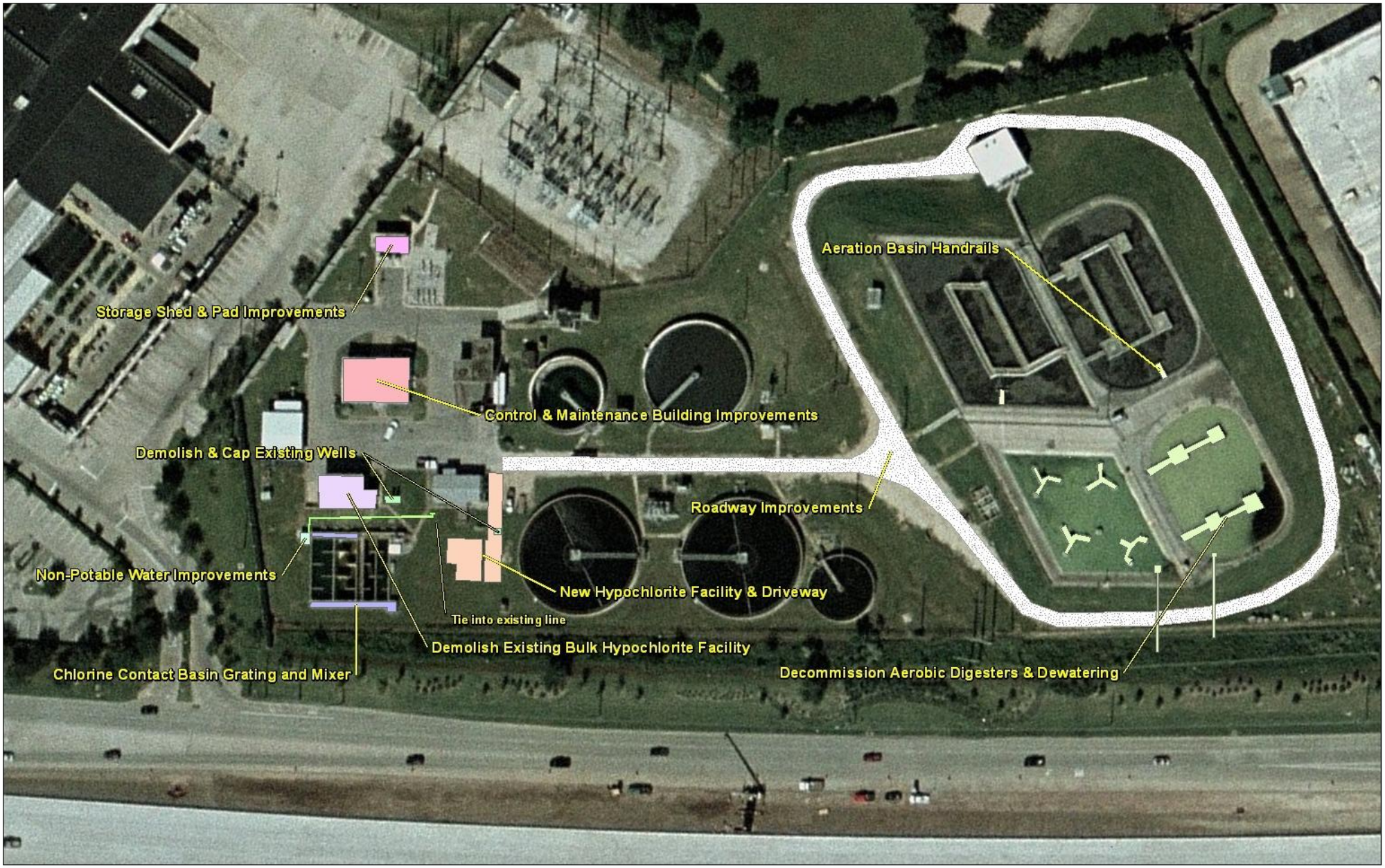
- Chemical Feed – A new bulk hypochlorite storage and feed system shall be installed.
- Non-Potable Water Improvements – The addition of a larger canister filter on the discharge of the non-potable water pumps.
- Abandon Wells – Demolish and cap the old well water system at the plant.
- Chlorine Contact Catch Basin – Replace some of the walkway grating and the addition of piping and a nozzle for mixing the effluent channel.
- Site Road Improvements – Gravel resurfacing of the existing road serving the aeration basin.
- Refurbish Controller Building Exterior – Paint the exterior, replace exterior steel doors and frames, windows and support columns.

The purpose of this project is to complete final design for the recommended improvements which totaled $750,000 in estimated construction costs. The scope of work for the design phase will include basic and additional services. The basic services include engineering design necessary for the successful advertisement, bid and award including: preparation of final design documents, provide opinion of probable construction costs, advertisement and bid phase services. The additional services will include geotechnical investigation and topographical surveying.

There is currently $961,000 budgeted in CIP WW1001 for the project. The project schedule includes design completion eight (8) months after award of the contract.

The Utilities and Engineering Departments recommend that the City Council authorize the execution of an engineering services contract with Alan Plummer Associates, Inc. (APAI) for final design of the North Wastewater Treatment Plant Improvements in an amount not to exceed $126,000.

EXHIBITS


Storage Shed & Pad Improvements
Aeration Basin Handrails
Control & Maintenance Building Improvements
Demolish & Cap Existing Wells
Roadway Improvements
Non-Potable Water Improvements
New Hypochlorite Facility & Driveway
Tie into existing line
Demolish Existing Bulk Hypochlorite Facility
Chlorine Contact Basin Grating and Mixer
Decommission Aerobic Digesters & Dewatering

CITY OF SUGAR LAND STANDARD CONTRACT FOR PROFESSIONAL ENGINEERING DESIGN SERVICES FOR CITY FACILITIES

Over $50K - Form Revised 3/1/10

I. General Information and Terms.

Engineer's Name and Address: Alan Plummer Associates, Inc.
3100 Wilcrest Dr # 270
Houston, TX 77042-3530

Project Description: North Wastewater Treatment Plant Improvements

Maximum Contract Amount: $126,000

Effective Date: On the latest date of the dates executed by both parties.

Termination Date: (See III F)

Contract Parts: This Contract consists of the following parts:

I. General Information and Terms
II. Signatures
III. Standard Contractual Provisions
IV. Additional Terms or Conditions
V. Additional Contract Documents

II. Signatures. By signing below, the City and the Engineer agree to the terms of this Contract, which consists of the following parts:

CITY OF SUGAR LAND

_____
City Manager or Assistant City Manager

Date: _____

Reviewed for Legal Compliance:

ENGINEER:

By: _____
John M. D'Antoni

Date: 10-1-10

ATTACHMENT A

City of Sugar Land
CIP No. WW1001
North Wastewater Treatment Plant Improvements
Design and Bid Phase Engineering Services
Scope of Work

The following scope of work will provide the design phase services necessary to complete the construction bid package for addition of a bulk sodium hypochlorite/sodium bisulfite feed system to provide disinfecting chemical and dechlorination at the North Wastewater Treatment Plant. a nonpotable water filtration system and parallel piping addition. an injection system for neat feeding of bulk hypochlorite chemical at the Chlorine Contact Basin. a hypochlorite chemical feed system to control growth of algae on the secondary clarifier weirs, a mixing device for the Chlorine Contact Basin effluent channel, and site road improvements. The construction documents will also include demolition of the existing hypochlorite feed facilities. demolition of well equipment at two wells. demolition of structures and equipment in the aerobic digesters, and addition of sumps and pumps in the digesters to remove collected rain water. The current design phase scope and fee estimate is based on the CIP No. WW1001 Facility Plan Technical Memorandum completed by APAI in August of 2010.

BASIC SERVICES

TASK 1 DESIGN PHASE SERVICES

I. **Preparation of Final Design Documents**

A. Complete final design calculations and sizing for the bulk sodium hypochlorite and sodium bisulfite feed facilities.

B. Prepare P&IDs and operating and control descriptions for hypochlorite disinfection, sodium bisulfate dechlorination, and non-potable water pumping and distribution.

C. Prepare detailed plans. specifications. contract documents. designs. and layouts of the facilities identified in the CIP No. WW1001 Facility Plan and confirmed in the Basis of Design Meeting. The ENGINEER's technical specifications and standard details shall be utilized in the design of the CIP No. WW1001 improvements. CITY shall provide input on items which CITY prefers ENGINEER to specify. Detailed design documents including mechanical, civil. structural and electrical designs and layouts will be prepared for one design and construction project generally as described in the following:

1. Sodium Hypochlorite and Sodium Bisulfite Feed Systems – New facilities for unloading, storage. containment. and pumping to application points of 12% sodium hypochlorite and sodium bisulfate chemical solution to provide chlorination and dechlorination of the treated wastewater prior to discharge.

A piping system to deliver neat hypochlorite chemical to the secondary clarifier effluent weirs for algae control.

2. Nonpotable Water System Improvements – A new filter for 300 gpm of treated effluent pumped to onsite reuse applications and parallel distribution pipe to increase capacity to treatment facilities downstream of the belt press sludge dewatering equipment.
3. Chlorine Contact Basin (CCB) Improvements – PVC grating to replace existing steel, grating supports to be upgraded where needed, and piping from the non-potable water system to an induction nozzle for mixing the CCB effluent channel. An injector system to mix neat hypochlorite chemical into the flow channel ahead of the Chlorine Contact Basin.
4. Demolition of the existing disinfection storage and feed building.
5. Demolition of equipment at two water wells and capping of the wells.
6. Demolition of internal structures and equipment inside two aerobic digester basins.
7. Aerobic Digester Standing Water Removal – Sumps, pumps, and associated piping to remove accumulated rainwater from the aerobic digester basins and pipe to the closest sanitary sewer.
8. Site Road Improvements – Gravel resurfacing of the existing road serving the aeration basin and new road to complete a loop around the aeration basins and blower building.
9. Handrail Replacement at the Aeration Basin – Replace sections of corroded steel handrail with aluminum at piers on the aeration basin walls adjacent to the aerobic digesters.
10. Electrical and instrumentation modifications required to support the improvements.

D. As identified in the Basis of Design and any further adjustments in the scope, schedule, or quality of the PROJECT or in the construction budget authorized by the CITY, the ENGINEER shall prepare, for approval by the CITY, Drawings and Specifications setting forth in detail requirements for the construction of the PROJECT, which shall comply with all applicable laws, statutes, ordinances, codes, and regulations. The standard of care applicable to the ENGINEER's services will be the degree of skill and diligence normally employed by professional engineers or ENGINEERs performing the same or similar services at the time such services are performed. ENGINEER will perform again any service not meeting this Standard of Care without additional compensation.

E. Participate in one meeting with CITY at thirty percent (30%) complete to review the basis for design and freeze the final design concepts.

F. Conduct two Quality Control (QC) workshops with City staff at a mutually agreed upon location utilizing senior staff members with experience acceptable to the CITY. QC workshops are to be held at approximately fifty percent (50%) and ninety percent (90%) complete milestones for this PROJECT. Provide a PDF electronic copy and one (1) paper copy of documents to CITY five (5) days prior to each meeting.

G. Furnish CITY one (1) set of paper copies of final review plans, specifications, and bid proposals for final approval by the CITY. Upon final approval by the CITY, the

ENGINEER will provide the CITY one (1) set of full size "Final" drawings (22"x 34") of PROJECT and one (1) set of half-size (11" x 17") drawings, and one (1) CD of the drawings in PDF format.

H. Final specifications and drawings to be submitted to the CITY within eight (8) months of Notice to Proceed with Final Design.

II. Opinion of Probable Construction Cost

A. The ENGINEER shall provide a detailed statement advising the CITY of any adjustments to the Opinion of Probable Construction Cost included in the Preliminary Design Phase that may be indicated by changes in requirements or general market conditions.

B. Update opinion of probable construction cost. The ENGINEER shall submit to the CITY an Opinion of Probable Construction Cost based on current area, volume or other unit costs and which indicates the cost of each category of work involved in constructing the PROJECT. In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the PROJECT, the ENGINEER has no control over cost or price of labor and materials: unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate PROJECT cost or schedule. Therefore, the ENGINEER makes no warranty that the CITY's actual PROJECT costs, financial aspects, economic feasibility, or schedules will not vary from the ENGINEER's opinions, analyses, projections, or estimates.

III. Final Design Submittals and Coordination

A. Submit plans, specifications, and contract documents to the applicable federal and state agency(s) for approval, where required.

B. Advise the OWNER with respect to completing subsurface investigations, including borings, test pits, soil resistivity surveys, and other subsurface explorations. Geotechnical investigation is included under Special Services of this Agreement.

C. The ENGINEER shall assist the CITY in connection with the CITY's responsibility, if any, for filing documents required for the approval of governmental authorities having jurisdiction over the PROJECT.

D. Furnish such information necessary to City for coordination with utility companies whose facilities may be affected or services may be required for the PROJECT.

IV. **Project Management and QA/QC**

The ENGINEER will prepare a Project Plan and Schedule, monitor, and formally report on project progress on a monthly basis in conjunction with invoices. Activities will be monitored and status coordinated between the ENGINEER and CITY bi-weekly. Project submittals will be reviewed prior to submission as part of the routine project QA/QC procedures.

TASK 2 ADVERTISEMENT AND BID PHASE SERVICES

A. ENGINEER shall use CITY's General Conditions and Agreement form and shall assist in preparing bidding information and any necessary project specific modifications.

B. ENGINEER will distribute PDF copies of the bidding documents to general contractors for the project. The notice to bidders will be furnished to the CITY for publication in the local news media. The cost for publications shall be paid by the CITY.

C. ENGINEER will respond to questions from Bidders and prepare addenda. Contractor questions will be received directly by the ENGINEER or go to the CITY through Bid Sync for forwarding to the ENGINEER. Addenda shall be sent electronically to the CITY for approval before ENGINEER distributes PDF copies to general contractors.

D. Prepare for, attend, and preside at a project pre-bid conference for all interested bidders. It is anticipated that the pre-bid conference will occur at the North Wastewater Treatment Plant site.

E. The ENGINEER will review the bids received, check the references of up to three (3) unfamiliar contractors, and furnish recommendations on the award of the contract or the appropriate actions to be taken by the CITY for the project.

F. ENGINEER will post addendum items to plans and specifications and furnish CITY one (1) "conformed" full-size (22" x 34") set of plans, one (1) set of specifications, one (1) half-size (11" x 17") set of plans and one (1) CD of the drawings in PDF format and furnish five (5) sets to CONTRACTOR.

SPECIAL SERVICES

SPECIAL SERVICES are those services known to be required for completion of the project that the CITY agrees are to be furnished by the ENGINEER and are not included in the scope of work of BASIC ENGINEERING SERVICES or the amount of compensation for BASIC ENGINEERING SERVICES. These services shall be performed based on written request by the ENGINEER and approval by the CITY. The SPECIAL SERVICES for this assignment are described as follows:

Attachment A

I. Subsurface Geotechnical Investigation

A. Provide for and coordinate geotechnical investigation required for the design of the project.

B. Drill, classify, and perform pertinent tests on soils for two (2) points (average bore depth 20 vertical feet) at the location of facilities included in the design upon approval by CITY. If number of borings required or if average boring depth exceeds these values, additional compensation may be requested as an ADDITIONAL SERVICE.

C. If reasonable access is not available to selected sites, or if tracked or other special vehicles are needed for site access, additional compensation may be requested as an ADDITIONAL SERVICE.

D. Provide one (1) paper copy and a PDF file of the geotechnical investigation summary report for CITY's records.

II. Topographical Surveying

Topographical surveying shall be developed as required to complete the final design and may include, but not be limited to, the following:

1. Providing all necessary topographic data (horizontal and vertical) necessary for the preparation of designs and drawings. The topographic data shall include, but not be limited to, establishing locations and elevations for all visible structures including manhole tops and inverts, tops of all valves in valve boxes, culverts, ditches and sizes of inflow/outflow pipes in all inlets and outfalls. Other items requiring locations are top of curbs, edges of pavement. edges of shoulders, driveways, sidewalks, roadway medians, and fences. Provide grade contours at 1-inch increments.
2. Locating horizontally and vertically all existing structures. Provide coordinates and elevations for the corners of rectangular structures, and for four points on circular structures. Provide grade elevations adjacent to all structure elevation points.
3. Provide top of wall elevations at a minimum of two points for each straight wall and four points for each circular wall.
4. Locating horizontally and vertically all visible utilities. Locate all utility lines above the ground and locate any underground utilities that OWNER or ENGINEER arranges to have marked or staked prior to survey.
5. All field notes to provide coordinates, elevations and identification of each surveyed point. Coordinates and elevations shall be tied into the existing plant coordinate system. Each point should be assigned a number in coordination with the ENGINEER to facilitate discussions/problem resolutions. Submit two copies of field notes to the ENGINEER along with computer file with all reduced field data collected.

ADDITIONAL SERVICES

Various ADDITIONAL SERVICES that are not within the scope of the BASIC ENGINEERING OR SPECIAL SERVICES covered by the preceding paragraphs. may be performed or arranged for separately by the CITY, or may be added to the ENGINEER's responsibilities by mutual agreement and written authorization. Any services desired by the CITY under these ADDITIONAL SERVICES provisions require advance written authorization, including establishment of a negotiated fee ceiling for each task authorized, before ENGINEER may proceed.

A. Design services for neat feeding of bulk hypochlorite chemical to secondary clarifier weirs and injection mixing of neat chemical into the flow prior to the chlorine contact basin at the CITY's South Wastewater Treatment Plant.

SERVICES BY THE CITY

The CITY and its representatives will render services inclusive of the following:

A. Provide available criteria and full information as to the CITY's requirements for the PROJECT.

B. Assist the ENGINEER by placing at his disposal all available written data pertinent to the PROJECT.

C. Examine documents submitted by the ENGINEER and render a decision pertaining thereto promptly, to avoid unreasonable delay in the progress of the ENGINEER's services.

D. Furnish information required as expeditiously as possible for the orderly progress of the work.

E. The services, information, and reports required by this Agreement, inclusive, shall be furnished at the CITY's expense. and the CITY will use its best efforts to apprise the ENGINEER of any inaccuracies or inconsistencies in the information provided.

Attachment A

COMPENSATION SUMMARY

Basic Services

A.	Design Phase	$	105,000
B.	Advertisement and Bid Phase	$	11,000
	Total Basic Engineering Services	**$**	**116,000**

Compensation for basic services shall be on a lump sum basis. When compensation is on a lump-sum basis, monthly progress payments will be based on an estimated completion percentage, and monthly invoices will not include a detailed listing of personnel time or expenses.

Special Service Allowances

A.	Subsurface Geotechnical Investigation (2 Bores)	$	6,000
B.	Topographical Surveying	$	4,000
	Total Special Service Allowances	**$**	**10,000**

Compensation for special services shall be on a reimbursable basis in accordance with the ENGINEER's Hourly Fee Schedule on the following page. A multiplier of 1.10 will be applied to all direct expenses including sub-contractor costs. All Special Services will require authorization by the CITY prior to performing the services

TOTAL Basic Engineering Services and Special Service Allowances	**$**	**126,000**